ENTOMOLOGICAL NEWS

JULY 1956

Vol. LXVII **No. 7**

CONTENTS

Calvert—Dr. Charles Christopher Adams 169
Kring—A double monster larva 171
Elbel and Emerson—A mallophagan from the white pelican 173
Laboratory training courses 176
Nomenclature notice 176
Alexander—Eastern crane-flies. Part XII 177
Hoffman—Identity of Polydesmus leachii Gray 186
Riegel—Zoraptera from Missouri 188
Fox—Aphididae in Makino's atlas of chromosome numbers 189
Barnes—Minnesota Mecoptera 191
Frost—Bibliography of insects on postage stamps 192
Notes and News in Entomology
Prof. von Frisch awarded Magellanic Prize 193
Review: Matching the hatch 195

PUBLISHED MONTHLY, EXCEPT AUGUST AND SEPTEMBER, BY
THE AMERICAN ENTOMOLOGICAL SOCIETY
PRINCE AND LEMON STS., LANCASTER, PA.
AND
1900 RACE STREET, PHILADELPHIA 3, PA.

Subscription, per yearly volume of ten numbers: $5.00 domestic; $5.30 foreign; $5.15 Canada. Entered as second-class matter April 19, 1943, at the post office at Lancaster, Pa., under the Act of March 3, 1879. Acceptance for mailing at the special rate of postage provided for in paragraphs (d-2), Section 34.40, P. L. & R. of 1948, authorized April 19, 1943.

ENTOMOLOGICAL NEWS

ENTOMOLOGICAL NEWS is published monthly, excepting August and September, by The American Entomological Society at Prince and Lemon Sts., Lancaster, Pa., and the Academy of Natural Sciences, 1900 Race Street, Philadelphia 3, Pa., U. S. A.

PHILIP P. CALVERT, Editor Emeritus. R. G. SCHMIEDER, Editor. Editorial Staff: H. J. Grant, Jr., E. J. F. MARX, M. E. PHILLIPS, and J. A. G. REHN.

Subscription price, per yearly volume of 10 numbers: Domestic, $5.00; Foreign, $5.30; Canada, $5.15—U. S. Currency.

SUBSCRIPTIONS: Communications and remittances to be addressed to **Entomological News, 1900 Race Street, Philadelphia 3, Pa.**

ADVERTISEMENTS: Rate schedules available on request. Address, **Fred B. Jacobson, Advertising Manager, Entomological News, 1900 Race Street, Philadelphia 3, Pa.**

MANUSCRIPTS and all communications concerning same should be addressed to **R. G. Schmieder, Zoological Laboratory, University of Pennsylvania, Philadelphia 4, Pa.**

The receipt of all papers will be acknowledged and, if accepted, they will be published as soon as possible. If not accepted, authors will be so advised and postage requested for return of manuscripts. Articles longer than six printed pages may be published in two or more installments, unless the author is willing to pay for the cost of a sufficient number of additional pages in any one issue to enable such an article to appear without division.

ILLUSTRATIONS. Authors will be charged as follows: For text-figures, the cost of engraving; for insert plates (on glossy stock), the cost of engraving plus the cost of printing. The size of text-figures or plates when printed must not exceed 4 x 6 inches.

All blocks will be sent to authors after publication. It is not advisable to print half-tones as text-figures.

TABLES: Authors will be charged the setting of all tables exceeding 2 inches in height.

SEPARATA: Twenty-five extras of an author's contribution will be given free. They will be "run of form," without removal of extraneous matter, folded but not bound, uncut and without cover.

Authors wishing more than the 25 separates must so advise the Editor or the printer. See bottom of this page. The Editor requests that authors state the number of separates desired in a letter accompanying their manuscript.

SEPARATES of articles without covers, without extraneous matter, will be furnished by the printer at the following prices: 1–4 pages, 25 copies, $3.13; 50 copies, $3.13; 100 copies, $3.75. 5–8 pages, 25 copies, $5.00; 50 copies, $5.00; 100 copies, $5.94. 9–12 pages, 25 copies, $7.81; 50 copies, $7.81; 100 copies, $9.06. Covers: first 50, $3.44; additionals at .025 cents each. Plates, printed on one side: first 50, $2.50; additional at 0.188 cents each. Transportation charges will be extra. THE LANCASTER PRESS, INC., Lancaster, Pa.

ENTOMOLOGICAL NEWS

VOL. LXVII JULY, 1956 No. 7

Dr. Charles Christopher Adams

Dr. Charles Christopher Adams died at Albany, New York, May 22, 1955. A "resolution of respect" concerning him was published in the Bulletin of the Ecological Society of America for September, 1955. As a founder of that Society and a past president, this resolution naturally emphasizes his ecological interests. It mentions that he served as assistant entomologist with the Illinois State Laboratory of Natural History from 1896 to 1898, a period which partly overlaps his early interest in the Odonata, an interest which deserves more than a fleeting notice. He and I corresponded actively from as early as January, 1895, and until his interests became absorbed in general problems of ecology beginning with the mollusks. Only one brief paper by him on Odonata from Marion County, Arkansas, appeared in dragonfly literature (Ent. News xii: 621–622, Dec. 1900), but he amassed an extensive collection of these insects which he presented to the Academy of Natural Sciences of Philadelphia in 1946. It includes many specimens from Bloomington, Illinois, where his early collecting was done, Odonata from the upper waters of the Cumberland and Tennessee Rivers when he was gathering material of the gasteropod Io for the earliest of his ecological studies. He corresponded with dragonfly students such as J. G. Needham, E. B. Williamson, Réné Martin in France. He urged upon me the importance of determining centres of distribution when I was working on the Odonata for the Biologia Centrali-Americana, but I reported back to him that the geographic data were too few and too scattered to make that possible.

As Curator of the University Museum of the University of Michigan, Adams was instrumental in organizing an ecological surevy of the Porcupine Mountains in Ontonagon County and on Isle Royale in 1904. A report on the work done was published in 1906 at Lansing. Adams wrote the Introductory Note in which he said, "The aim of the present expedition was not directed primarily along the lines usually followed by natural history surveys. The aim was to secure *ecological facts and relations* concerning the plants and animals of the regions visited. In order to accomplish this it was necessary not only to collect specimens but also to make observations concerning the relation of plants and animals to their environment. Mr. Ruthven was therefore instructed to run lines of survey across the region examined in such a way as to include examples of all the representative habitats or environments. These habitats were then to be examined in as much detail as time permitted. In this study attention was directed particularly to the forces and conditions composing the environment in order that the dominant forms might be clearly recognized. This involves a careful analysis of the conditions, as it is only by such means that the laws of change can be recognized, and the dynamics of the habitat be understood. In this way, the habitat can be studied from the standpoint of *processes* rather than from that of the end result or effects of such forces, for it is very evident that if the habitats are to be understood it must be by a study of their laws of change."

Adams wrote also the Notes on the Mammals of the Porcupine Mountains and Isle Royale of this report.

After he became Director of the New York State Museum at Albany in 1926, Adams prepared the Annual Reports of the Museum. A reading of some of these makes it evident that administrative duties of a varied character absorbed his time and energies. His report for the year 1942–43, page 66, contains "an interesting personal item" describing the first time he came within the sphere of influence of the State Museum in 1891. He retired from the directorship in 1943. He was born at Clinton, Illinois, July 23, 1873.

Adams' daughter, Miss Harriet Dyer Adams, presented his library to the Western Michigan College at Kalamazoo, Michigan, in preference to the University of Michigan, Harvard, Yale, Cornell and the University of Illinois, according to an unsigned illustrated article in the Western Michigan News Magazine, number for Winter, 1956, pages 7–8. This article contains an engaging portrait of Dr. Adams. The College has established the Charles C. Adams Center for Ecological Study, and Dr. Daniel F. Jackson, director of the Center, states that "This material will be available to anyone desiring to use it."

PHILIP P. CALVERT

A Double Monster Larva of Limonius agonus (Say). (Elateridae, Coleoptera)

By JAMES B. KRING, The Connecticut Agricultural Experiment Station

Among newly hatched larvae of the eastern field wireworm, *Limonius agonus* (Say), Mr. A. DeCaprio found a dead two-tail individual (fig. 1). In the excellent discussion of teratology in the Coleoptera by Balazuc (1948) a somewhat similar larval monster is classified as a double monster anadidyme.

Balazuc and Variot (1952) in describing an adult double monster catadidyme of *Goliathus goliathus* reported that only three double monsters were known in the Coleoptera, two Scarabaeridea adults and one Elateridae larva.

The double monster Elateridae larva was reported by Woodworth (1932). It was a newly hatched two-tailed larva of the Pacific Coast wireworm, *Limonius canus* Lec., in which the body division occurred in the sixth abdominal segment. This larva was killed shortly after it was discovered to prevent its loss.

The double monster larval anadidyme (*L. agonus*) reported here differs from the somewhat similar anadidyme (*L. canus*) of Woodworth in that body division occurred in the eighth ab-

dominal segment. This division resulted in partial duplication of the eighth segment and complete duplication of only the ninth abdominal segment. Twinning in this instance occurred at a later development stage. It is unfortunate that neither larva lived. Larval monsters of this type have not been reported from field collections. This could be expected since mortality is very high among first instar larvae and it is unlikely that a malformed larva of this type would long survive.

The *L. agonus* larva hatched from a group of 169 eggs that were deposited during a four-day period by three adult click beetles. This was the only malformed larva in the group. While the exact number of eggs laid by the parent of this abnormal larva is not known, adult females of *L. agonus* under similar laboratory conditions lay average numbers of eggs varying from 124 to 194 eggs per female (Kring, 1955).

The eggs were recovered from the oviposition substrate by flotation with saturated sodium chloride solution. They were handled with soft camel's hair brushes and with scoops hammered from laboratory probes. Hatching took place in distilled water at 70° F. constant temperature. Since all eggs received similar treatment and this was the only abnormal larva it is doubtful that this abnormality resulted from shock administered during development.

Several thousand elaterid larvae were examined during a three-year study period and only this one monster was found.

The rarity of discovery of insect larval abnormalities of this type is the basis for reporting this double monster larval anadidyme of *Limonius agonus* (Say). In addition this specimen differs from the only previous description of a larval abnormality of this type in that the division is less complete and represents a separate species.

Literature Cited

Balazuc, Jean. 1948. Mem. Mus. nat. Hist. nat., N. S. 25: pp. 63–67.
Balazuc, J., and R. P. Variot. 1952. Revue Francaise d'Entomologie 19(2): 128–130.
Kring, J. B. 1955. Ent. News 66(7): 187–189.
Woodworth, C. E. 1932. Psyche 39(1–2): 37–40.

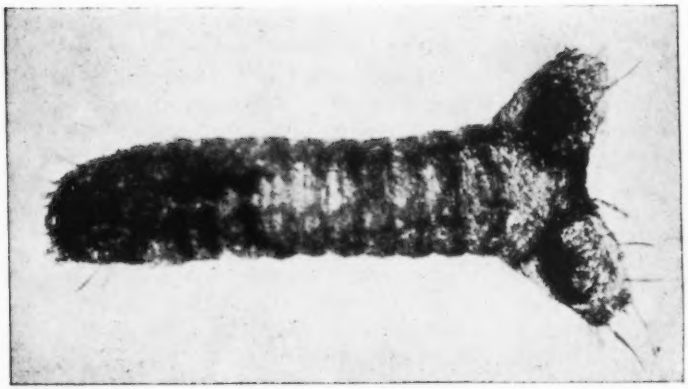


FIG. 1. Double monster first instar larva of *Limonius agonus* Say.

A New Mallophagan from the White Pelican

By ROBERT E. ELBEL, Lawrence, Kansas, and K. C. EMERSON, Stillwater, Oklahoma

The genus *Pectinopygus* Mjöberg, 1910, is found on hosts of the Avian order Pelecaniformes; the species found on the pelicans being included in the subgenus *Epipelicanus* Harrison, 1935. *Pectinopygus* (*Epipelicanus*) *occidentalis* Thompson, 1948, is normally found on the California and the Eastern Brown Pelicans. When Thompson described that species, he expressed an opinion that the species found on the White Pelican was probably new. Lacking sufficient material, the form found on the White Pelican was not included in his study. In our opinion, the form represents a new species and is herewith described and illustrated.

Pectinopygus (Epipelicanus) tordoffi n. sp.

Male. As illustrated in figures 1, 3, and 4. Head slightly longer than broad. Dorsal anterior plate nearly one-fifth length

of head, postero-lateral margins rounded and posterior margin medially pointed; ventral anterior plate one-fourth as long as dorsal anterior plate and with postero-lateral margins rounded. First antennal segments enlarged, each bearing an appendage; third segments produced beyond point of articulation with fourth. Prothorax twice as broad as long with two small dorsal setae in the postero-lateral margins. Pterothorax longer than broad, with chaetotaxy as shown in figure 1. First seven (apparent) abdominal tergites divided medially; second to seventh abdominal sternites each transversely continuous. Abdominal chaetotaxy as shown in figure 1, that of the terminal segment as shown in figure 3. Parameres of genitalia smooth, curved, and with free distal ends; as illustrated in figure 4.

Female. As illustrated in figures 2, 5, 6 and 7. Similar to the male in general structure and chaetotaxy of head and thorax. Antennae filiform. Thoracic sternite elongated posteriorly. Abdomen with small oval-shaped lateral sternal plates. Abdominal terminal segments as illustrated in figures 5 and 6.

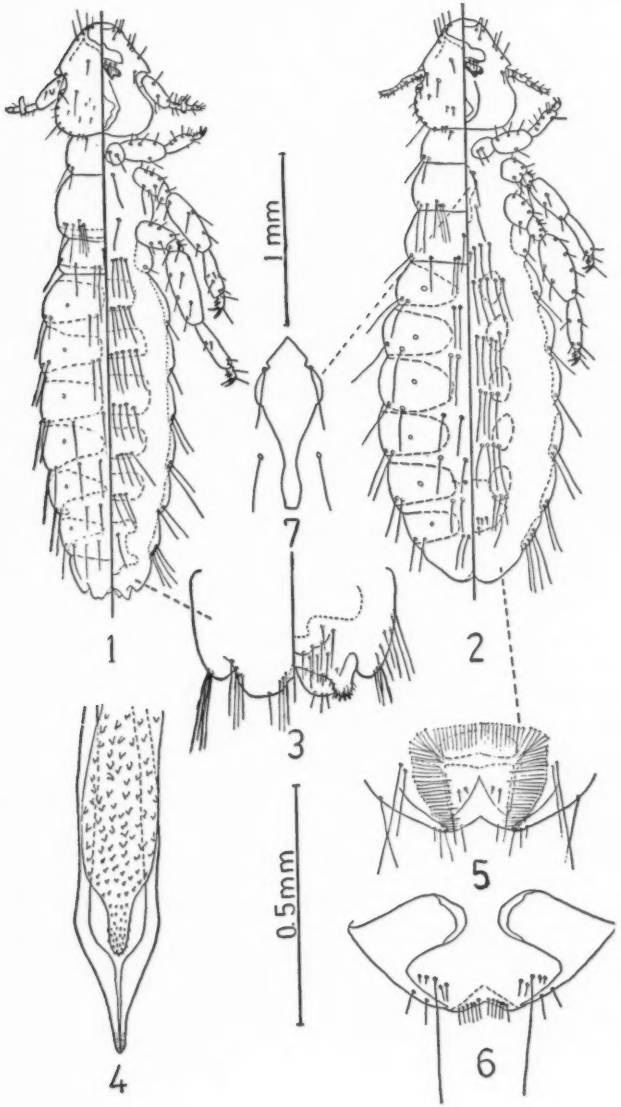
Discussion. This species is closely related to *Pectinopygus* (*Epipelicanus*) *occidentalis* Thompson, 1948. The parameres of the male genitalia are fused at the distal ends and have lateral projections in *occidentalis;* they are free at the distal ends and smooth in *tordoffi*. In addition, the two species can be separated by: (1) the lateral lobes of the terminal abdominal segment of the male, each have five short stout spines in *tordoffi*, while these structures possess seven in *occidentalis;* (2) the setae in the ventral chaetotaxy of the terminal abdominal segment of the female, are longer and more numerous in *tordoffi;* and (3) the thoracic sternal plate is longer and more pointed posteriorly in *tordoffi*.

EXPLANATION OF FIGURES

Pectinopygus (*Epipelicanus*) *tordoffi* n. sp.

Figures 1 and 2 drawn to same scale, figures 3 through 7 drawn to same scale.

FIG. 1. Dorsal-ventral view of male.
FIG. 2. Dorsal-ventral view of female.
FIG. 3. Terminal abdominal segment of male, dorsal-ventral view.
FIG. 4. Male genitalia.
FIG. 5. Terminal abdominal segment of female, ventral view.
FIG. 6. Terminal abdominal segment of female, dorsal view.
FIG. 7. Female thoracic sternite.


1 mm
0.5mm
1
2
3
4
5
6
7

Type host: *Pelecanus erythorhynchos* Gmelin, White Pelican.

Type material: *Holotype* male and *allotype* female collected at Lawrence, KANSAS by Dr. Harrison Tordoff in October, 1954, have been deposited in the U. S. National Museum. *Paratypes:* 15 ♂, 9 ♀ collected at Lawrence, Kansas by Dr. Harrison Tordoff in October, 1954; 6 ♂ collected at Washington, D. C., on August 25, 1925; 8 ♂, ♀ collected at Dallas, Texas by O. G. Babcock on October 13, 1922; 3 ♂ collected at the mouth of Bear River, Utah on July 22, 1914; ♂ collected at Topaz, California by Webb and Waite on August 21, 1918; 4 ♂ collected on Upper Klamath Lake, Oregon by G. M. Gjullin on October 24, 1932; 2 ♂, 2 ♀ collected on Lake Malheur, Oregon; ♂, ♀ collected at Rosedale, Mississippi by M. G. Vaiden; and 2 ♂ collected at Lawrence, Kansas by F. H. Snow in October 1873.

REFERENCE

THOMPSON, G. B. 1948. Notes on species of the genus *Pectinopygus* (*s. l.*) (Mallophaga)—IV. Ann. Mag. Nat. Hist. (11) XIV: 317–327, 15 figs.

Laboratory Training Courses

The Department of Health, Education, and Welfare of the Public Health Service has again scheduled a series of 22 refresher training courses to be given September 1956 to March 1957. These deal with the diagnosis of bacterial, rickettsial, virus and mycotic diseases and run from one to four weeks. Write: Communicable Disease Center, Chamblee, Georgia.

Nomenclature Notice

All comments relating to the following should be marked with the Commissions File Number, and sent to Francis Hemming, 28 Park Village East, Regent's Park, London N.W. 1, England.

daea Dampf, 1910 (Palaeopsylla) (Class Insecta, Order Siphonaptera), determination of (File: Z.N. (S) 846). For details see: Bull. Zool. Nomencl. Vol. 11, Part 11.

Undescribed Species of Crane-Flies from the Eastern United States and Canada (Dipt.: Tipulidae). Part XII

By CHARLES P. ALEXANDER, Amherst, Massachusetts

The preceding part under this general title was published in ENTOMOLOGICAL NEWS 61: 163–171, 1950. Where not indicated to the contrary the types of the novelties herein described are preserved in my personal collection of these flies.

Two interesting species were taken at and near Indian House Lake, northeastern Quebec, during the summer of 1945 by my friend Mr. Roland C. Clement, a former student at the University of Massachusetts. Mr. Clement has supplied me with a detailed account of the station and it is expected that this fuller discussion will be published in a later report. At this time I wish to extract some of the more pertinent information from this excellent account. Indian House Lake lies at 56° 08′ N.Lat., 64° 44′ W.Long., in the valley of the George River, at an altitude of approximately 1,000 feet. Concerning the Tipulidae, Mr. Clement writes as follows: "Many of these flies were taken at light in one of the weather bureau buildings, some in a tiny cove exposed by receding lake waters, others in the rocky gulch of an active brook that runs by the station, and a few on the barrens and small bogs to the southwest of the station." Besides the two species described at this time, there were some further species of interest, some of which remain undetermined. Other species found here are the following.

Tipula (*Vestiplex*) *platymera* Walker. East barren, 1,500 feet, June 21.
T. (*Oreomyza*) *ternaria* Loew. June 19.
T. (*O.*) *trivittata* Say. July 7.
T. (*Lunatipula*) *macrolabis* Loew. July 25–August 4.
Cylindrotoma distinctissima americana Osten Sacken. July 18.
Dactylolabis rhicnoptiloides (Alexander). July 18.
Chionea valga Harris. November 22, 1944.
Erioptera (*Symplecta*) *cana* (Walker). June 21–28.

Tipula (Vestiplex) breviligula n. sp.

Belongs to the *juncea* group; general coloration gray, the praescutum with four brown stripes; dorsopleural membrane yellow; wings grayish yellow, stigma pale brown; *Rs* long, exceeding the distal section of M_4, *m-cu* at or only a short distance beyond the fork of M; abdominal tergites chestnut, with a conspicuous black central stripe; male hypopygium with the tergal horns short; inner dististyle without a long-produced outer basal lobe; ligula of eighth sternite short and broad, transverse, the apex very gently notched, the margin with abundant pale setae.

♂. Length about 17–18 mm.; wing 13.5–14 mm.; antenna about 5.5–6 mm.
♀. Length about 20–22 mm.; wing 15–16 mm.; antenna about 2.8–3 mm.

Frontal prolongation of head obscure yellow, pruinose above at base, nasus short and stout, especially in the female; basal two segments of palpi obscure yellow, outer segments darker. Antennae of male relatively long; scape and pedicel brownish yellow, flagellum black, segments moderately incised longer than the verticils; antennae of female short. Head brownish gray, front and orbits broadly light gray; a conspicuous brown stripe from between the antennal bases back to the occiput, darkest mid-dorsally.

Pronotum brownish gray, variegated by paler gray; scutellum yellow. Mesonotal praescutum gray, with four brown stripes, the lateral pair less distinct; scutum gray, each lobe with two darker areas; scutellum brownish yellow, parascutella clearer yellow; postnotum light gray. Pleura gray; dorsopleural membrane light yellow. Halteres with stem obscure yellow, knob dark brown. Legs with coxae gray; trochanters obscure yellow; femora brownish yellow, the tips narrowly darker brown; tibiae light brown, vaguely darker apically; tarsi dark brown; claws of male with a conspicuous spine. Wings grayish yellow; stigma pale brown; cell *Sc* more yellowed; veins pale brown. Venation: *Rs* long, exceeding the distal section of vein M_4; cell M_1 longer than its petiole; *m-cu* at or close to

fork of M, in cases beyond at fork of M_{3+4}, the latter thus short to very short, in some specimens *m-cu* on M_4.

Abdominal tergites chestnut, with a conspicuous black central stripe that is narrowly broken by pale yellow posterior borders, the latter more extensive on the outer segments; sternites pale brown, the posterior borders yellowed; ninth tergite and eighth sternite darker; remainder of hypopygium more chestnut-brown. Ovipositor of the *juncea* type; cerci short, untoothed. Male hypopygium with the posterior border of the tergite blackened, the lateral angles extended into short black horns, their tips truncate. Ninth sternite with a small cylindrical lobe below the insertion of the dististyles, this provided with long setae. Outer dististyle relatively long; inner style with the beak slender, outer basal lobe not long-produced, as in other members of the *juncea* group. Eighth sternite with the apical ligula very short and broad, transverse, the apex very gently notched, the margin with abundant pale setae.

Habitat.—NORTHERN ONTARIO, MICHIGAN. *Holotype:* ♂, Cape Henrietta Maria, Hudson Bay, Ontario, July 6, 1948 (Miller); University of Michigan. *Allotopotype:* ♀. *Paratopotypes:* 1 ♂ on microscope slide, Roger's No. 4637 (blue label 2093); 1 ♂, 1 ♀, July 6–12, 1948 ("W.Y.W."). *Paratypes:* 1 ♂, 2 ♀♀, Pentwater, Oceana Co., Michigan, June 24–26, 1936 (Henry Dybas); male returned to Camras.

This fly is readily told from the other regional members of the *juncea* group by the genital characters, as diagnosed above. It is the first member of the group to be found in the eastern United States. What I believe represents this same species, but which has not been confirmed to this date, has been taken along the south shore of the Gaspe Peninsula, in eastern Quebec, and along the Little Smoky River, near Triangle, Alberta, all taken by the present writer.

Tipula (Arctotipula) tribulator n. sp.

Allied to *besselsi* and *suttoni;* general coloration gray, the praescutum with four brown stripes, the intermediate pair separated by a broad brownish gray line; antennae black

throughout, flagellar segments short, strongly incised; femora obscure yellow, tips black, claws of male toothed; wings with a grayish brown tinge; stigma dark brown, conspicuous, preceded and followed by extensive pale areas; outer section of vein R_{4+5} with a series of trichia, R_{1+2} entire; male hypopygium with the caudal margin of the tergite with a deep quadrate notch, the lateral lobes large, obtusely rounded; a transverse flattened four-spined plate on ventral face of tergite; inner dististyle with beak long-extended, its outer basal portion obtuse, not spinous.

♂. Length about 11–13 mm.; wing 13.5–15 mm.; antenna about 4–4.5 mm.

Frontal prolongation of head dark brownish gray; nasus stout; palpi black. Antennae black throughout, scape and pedicel pruinose; flagellar segments short but strongly incised; longest verticils subequal in length to the segments. Head brownish gray, the front and orbits clearer gray.

Pronotum brownish gray, the sides of the scutellum obscure yellow. Mesonotal praescutum in front brownish gray, more yellowish gray on the interspaces; four brown stripes, the intermediate pair about as wide as the brownish-gray central area, lateral stripes with their outer portions clearer gray; vestiture long and pale; posterior sclerites of notum gray, the scutal lobes more yellowed on mesal part and here with a small brown spot; scutellum and mediotergite with a central brown line. Pleura and pleurotergite gray, the katapleurotergite more yellowish gray; dorsopleural membrane more buffy yellow. Halteres with stem obscure yellow, knob moderately infuscated. Legs with the coxae light gray, with abundant long pale setae from small black punctures on outer face; trochanters gray; femora obscure yellow basally, passing into yellowish brown, the tips black, the amount subequal on all legs; tibiae yellowish brown or light brown, the tips darker, tarsi passing into black; claws of male toothed. Wings with a brownish or grayish brown tinge, the oval stigma dark brown, conspicuous; prearcular region whitish subhyaline; extensive pale areas before and beyond the stigma; obliterative area across base of cell

1st M_2 restricted and inconspicuous; wing tip in outer radial field strongly infuscated; veins brown, yellow in the brightened areas. Veins beyond cord glabrous, outer section of R_{4+5} with a series of trichia over the entire length. Venation: R_{1+2} entire; petiole of cell M_1 a little longer than *m*; cell *2nd A* broad.

Abdominal tergites dark brown, the caudal margins very narrowly pale, more or less interrupted; lateral tergal borders broadly buffy; sternites gray, the caudal borders narrowly yellow; hypopygium brownish gray, the outer dististyle yellow. Male hypopygium with the caudal margin of the tergite with a deep quadrate notch, the lateral lobes large, flattened, obtusely rounded, fringed on mesal edges with long black setae; a conspicuous blackened plate on ventral surface, provided with four spines, the lateral pair longer. Outer dististyle broadly flattened, the tip obtuse; inner style with the beak long-extended, its outer basal portion obtuse, not produced into a spinous point as in *besselsi* and *suttoni;* dorsal crest with abundant erect setae, the outer ones shorter, stouter and darker.

Habitat.—NORTHERN QUEBEC. *Holotype:* ♂, Indian House Lake, George River, June 27, 1945 (Roland C. Clement). *Paratopotypes:* 5 ♂ ♂; at camp brook.

There are other high Arctic species of the subgenus having a four-spined ventral plate on the ninth tergite of the male hypopygium. Among such Arctic American species, the present fly is closest to *Tipula* (*Arctotipula*) *besselsi* Osten Sacken and *T.* (*A.*) *suttoni* Alexander, differing especially in the details of coloration and in the structure of the male hypopygium, particularly the tergite and the inner dististyle, as discussed above.

Dicranota (Dicranota) clementi n. sp.

General coloration gray, praescutal stripes poorly defined; antennae of male relatively long, the flagellar segments oval; legs blackened, femoral bases broadly yellow; wings with a weak dusky tinge, cells *C* and *Sc*, with a broad seam along *Cu*, darker; stigma dark brown, conspicuous; *Rs* subequal in length to the second section of R_{2+3}; male hypopygium with the interbase and inner dististyle unusually slender.

♂. Length about 7 mm.; wing 7 mm.; antenna about 1.6 mm. Rostrum brown; palpi black. Antennae black, relatively long, as shown by the measurements but shorter than in *bimaculata* or *notmani;* flagellar segments oval, strongly narrowed at the ends, verticils shorter than the segments. Head above chiefly dark brown, the posterior orbits more yellowish gray.

Thoracic dorsum chiefly gray, the praescutal stripes poorly defined, only the median one clearly indicated; postnotum and pleura clearer gray. Halteres yellow, knobs very weakly infuscated. Legs with the coxae gray pruinose; trochanters yellow; remainder of legs blackened, the femoral bases broadly yellow, including more than one-half of either the middle or posterior femora (fore legs broken). Wings with a weak dusky tinge, restrictedly patterned with darker, including cell *C* and cell *Sc* as far distad as Sc_2; stigma still darker brown; moderately broad and conspicuous brown seams along vein *Cu* and adjoining membrane and over the cord; veins brownish black, narrowly yellowed at wing base. Venation: *Rs* of moderate length, about equal to the second section of vein R_{2+3}; Sc_2 a distance before origin of *Rs* a little greater than the length of the latter; R_{2+3+4} shorter than basal section of R_5; R_2 close to extreme tip of vein R_1; cell M_1 present; *m-cu* about one-third its length beyond the fork of *M*; vein *2nd A* curved gently to the margin. In one wing of the type, an adventitious crossvein in cell *Sc* a short distance beyond arculus.

Abdominal tergites gray, with a broad brown median stripe; basal sternites plumbeous gray, the outer ones extensively yellowed; outer segments and hypopygium more uniformly brownish black. Male hypopygium with the inner dististyle unusually long and slender, more so than in the other Nearctic members of the subgenus, only slightly widened outwardly, the length five to six times the width near apex. Interbase likewise unusually slender, the tip subacute. Phallosome evidently destroyed in the unique type.

Habitat.—NORTHERN QUEBEC. *Holotype:* ♂, Indian House Lake, George River, July 2, 1945 (Roland C. Clement).

I am pleased to name this fly for the collector of the present very interesting series of crane-flies from northern Quebec, Mr. Roland C. Clement. When compared with the various other Nearctic species, it is most similar to *Dicranota* (*Dicranota*) *fumipennis* Alexander and *D.* (*D.*) *notmani* Alexander, differing from both in the coloration and in the structure of the antennae and male hypopygium, particularly the inner dististyle and interbase. Among the western Palaearctic species, it is closest to *D.* (*D.*) *bimaculata* (Schummel), differing in the shorter antennae and in the structure of the male hypopygium.

Erioptera (Erioptera) georgei n. sp.

Belongs to the *chlorophylla* group; most like *chlorophylla* Osten Sacken and *viridula* Alexander, differing evidently and conspicuously in the structure of the male hypopygium.

♂. Length about 5.3–5.5 mm.; wing 5.8–6 mm.

General coloration of head, thorax and abdomen light green, paling to buffy in dried specimens. Legs yellow, strongly tinted with green. Eyes of male relatively large, broadly contiguous beneath. Male hypopygium with the outer dististyle gently dilated outwardly, the outer apical angle produced into a blackened point, the lower angle rounded; inner style subequal in length, narrower, a little expanded outwardly, bifid at tip, including an upper acute blackened spine and a lower obtuse lobe, the two separated by a small notch. Gonapophysis a slender smooth horn, narrowed to the acute tip, pale, with the apex narrowly blackened.

Habitat.—MICHIGAN. *Holotype:* ♂, The E. S. George Reserve of the University of Michigan, Livingston Co., at trap-light No. 2, June 23, 1947 (J. Speed Rogers); Rogers No. 37 A. *Paratopotypes:* 3 ♂♂, July 23–29, 1947; 4 ♂♂ on slide, August 21–22, 1950, in Alexander Collection through Rogers. *Paratypes:* Abundant ♂♂, all from the George Reserve, collected by Rogers and assistants, all in the University of Michigan collection.

I am very pleased to dedicate this interesting crane-fly to the late Colonel Edwin S. George, through whose interest and gen-

erosity the magnificent natural preserve that bears his name was presented to the University of Michigan. For a discussion of the Reserve and its ecology, an important paper by Rogers may be consulted.*

Erioptera (Illisia) venusta nubilosa n. subsp.

Quite as in the typical form excepting for the very distinctive wing pattern. The entire wing surface, except for the restricted base, equally narrow apex, cells *C* and *Sc*, and a small costal invasion just beyond the fork of *Rs*, uniformly brown, slightly more suffused in the stigmal area; the exceptions above noted are pale yellowish white, the basal area continuing into the costal, which ends at the dilated part described, with a further axillary prolongation into cell *2nd A*, extending to just beyond the anal angle; the costal invasion above mentioned in one wing does not reach *Rs*, in the other it crosses this vein and involves a narrow strip in cell *R*; wing tip narrow, extending from cell R_2 to M_3, broken by small brown marginal spots at ends of veins R_4, M_{1+2} and M_3; veins darkened in the infuscated parts, paler in the whitened areas.

Habitat.—MICHIGAN. *Holotype*, a ♂, mounted on microscope slide, Lake Co., July 12, 1936 (Townsend); Rogers No. 3967, University of Michigan.

This puzzling fly, known only from the unique type, as described, proved baffling both to the late Professor Rogers and myself. In its general appearance it differs widely from all of the hundreds of specimens of typical *venusta* that have been seen by us and because of this distinctness it is believed advisable to provide a name for the fly.

Genus **Cryptolabis** Osten Sacken
Subgenus **Phantolabis** n. subgen.

Vestiture of the legs relatively sparse and inconspicuous. Wings with *Rs* long, gently arcuated, in longitudinal alignment

* ROGERS, J. SPEED. The crane-flies (Tipulidae) of the George Reserve, Michigan. Univ. Michigan, Mus. Zool., Misc. Publ. 53: 1–128, 2 tab., 1 map, 8 pls.; 1942.

with R_{2+3+4}; R_{2+3} a little shorter than R_2; tips of veins R_3 and R_4 strongly upcurved, that of R_5 straight; cell M_2 open by atrophy of *m*; vein *2nd A* straight. No macrotrichia in wing cells, those of the veins likewise lacking or very reduced in size and number, even on veins *C* and *R* where usually they are most persistent. Male hypopygium with the styli large and fully exposed; a single dististyle, terminal in position. Gonapophyses undeveloped. Aedeagus long and slender, at near midlength profoundly split into three branches, suggestive of the condition in several groups of Cylindrotominae and some other Tipulidae.

Type of subgenus.—**Erioptera (Psiloconopa) lacustris** Alexander. (Eastern Nearctic Region).

The species was described (Bull. Brooklyn Ent. Soc., 33: 76–77; 1938) from material taken at Raco, Chippewa County, in the northern peninsula of Michigan, not far from Lake Superior. Later it was found in the southern peninsula by Rogers who found it in numbers along small clear streams, a habitat not unlike that of the type of *Cryptolabis, C. paradoxa* Osten Sacken. Ever since I described the species and assigned it to *Erioptera,* it has been realized that this was a highly aberrant fly that did not fit well into this genus. As more material became available and the species was re-examined, it was apparent that it could not be retained in *Erioptera* and evidently was closer to the genus *Cryptolabis,* particularly to the subgenus *Baeoura.* I am herewith proposing a new subgeneric group in *Cryptolabis* for the fly, realizing that later it may well be found to represent a valid genus. Unfortunately the female sex is unknown to me and the nature of the ovipositor cannot be stated.

The structure of the male hypopygium, particularly the phallosome, including the aedeagus, is entirely different from that of any of the other subgenera of *Cryptolabis* so far defined, including besides the typical subgenus, *Procryptolabis* Alexander (Neotropical) and *Baeoura* Alexander (Eastern Palaearctic, Oriental, Ethiopian; a single aberrant species in South Chile).

The Identity of Polydesmus leachii Gray, 1832 (Polydesmida: Euryuridae)

By Richard L. Hoffman, Blacksburg, Virginia, and
Ernest Browning, British Museum (Natural History)

Polydesmus Leachii Gray,[1] one of the oldest names proposed for a polydesmoid diplopod, has remained *inquirendum* for 125 years although its generic position is readily deducible from the drawings that constitute the original description of the species. It is equally remarkable that apparently no one has heretofore consulted Gray's type specimen, which has been continuously available in the collection of the British Museum.

An account of the status of *leachii* was drawn up several years ago as part of a revision of the genus to which the species belongs. But since completion of that project still seems as remote as ever, we take this occasion to explain the usage of the name *leachii* in the forthcoming "Checklist of the Diplopoda of North America."

It is quite apparent from the original drawings (here reproduced) that *Polydesmus Leachii* was based upon a milliped of the genus now known as *Euryurus* Koch. These illustrations clearly show the body form, quadrate telson, prominent subantennal swellings, color pattern, and a notch near the anterior corner of each paranotum, as well as a good impression of the gonopod structure. An early inference of the true identity of the species was completely confirmed by examination of the type, and the accompanying figure of the right gonopod further demonstrates beyond any doubt that the name *leachii* represents the *Euryurus* population of eastern central United States which has been recently re-named *Eutheatus aculeatus* by Causey.[2] Comparison of our illustration with that of the gonopod of *aculeatus* reveals a close concordance in nearly every detail, including the anisoramose tibiotarsus, and the subtri-

[1] J. E. Gray, in: The Animal Kingdom arranged in Conformity with its Organization by the Baron Cuvier, etc., by Edward Griffith and others, London, 1827–35. Diplopoda, vol. 15, pl. 135, 1832.

[2] Nell B. Causey, Chicago Acad. Sci. Nat. Hist. Misc., No. 106, pp. 1–11, 1952.

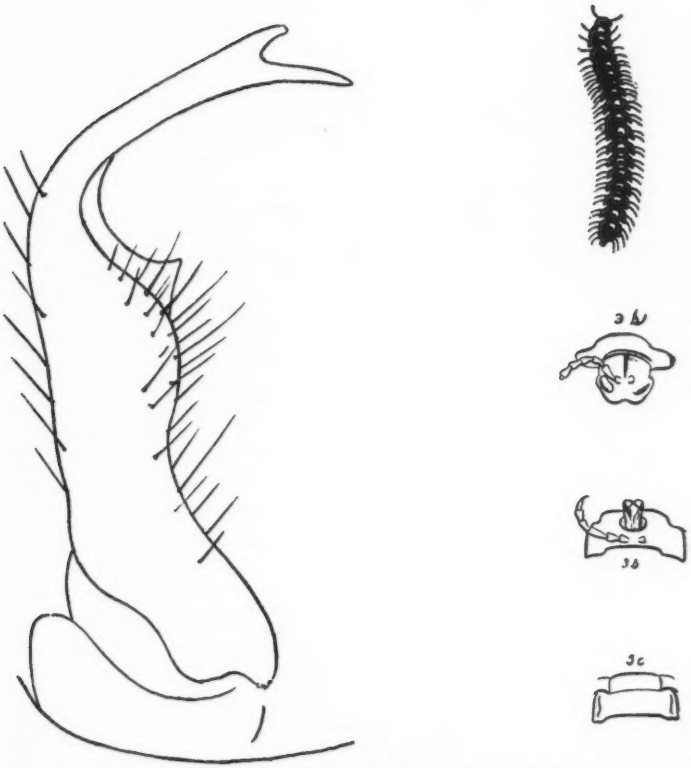


FIG. 1. *Euryurus leachii* (Gray). Left, ventral aspect of right gonopod of type specimen; right, photostatic copies of the original drawings depicting, from top to bottom, the entire animal in dorsal aspect, the front of the head, the seventh segment in ventral aspect, and a midbody segment in dorsal aspect.

angular, lamellate projection from the end of the femoral region.

Unfortunately no more precise locality than "North America" is entered for the *leachii* type in the records of the British Museum. Since the specimen was at the Museum prior to 1832, and since it must have come from a locality in midland United States, there is a good possibility that it was among material from Indiana sent to Dr. Leach by Thomas Say. But

speculation on this point is futile and since the type is extant, there is little necessity for the establishment of an arbitrary type locality. *Euryurus leachii* Gray (new combination) is known to occur from Illinois to western Pennsylvania and south through Kentucky into Tennessee.

Zoraptera from Missouri

By Garland T. Riegel, Eastern Illinois State College, Charleston

On May 21, 1955, specimens of *Zorotypus hubbardi* Caudell were collected at Garwood (Reynolds Co.) and Piedmont (Wayne Co.), Missouri, by Riegel, Mortweet, Moulder and Isley. In both cases old sawdust piles was the source of the insects. At Garwood 3 winged females were taken, while at Piedmont 1 winged female, 1 apterous male, and 1 apterous female were found. These localities are about 12 air miles apart in the Ozark hills. Piedmont is 37.8° N. and 90.41° W. with an elevation of 504 feet. Garwood is southwest of Piedmont and at a higher elevation.

Apparently these are the first records for Missouri, and the farthest northwest the species has been reported. The records given by Gurney (1938) for the vicinity of Washington, D. C. (38.55° N.), place the known limits farther north in the eastern states, and the record for Houston, Texas (95.22° W.), farther west in the southern states.

On May 21, 1954, another field trip group from the Zoology Department at Eastern found numerous specimens of *Z. hubbardi* in a sawdust pile at Ridgely in western Tennessee. No winged individuals were taken, although several had wing pads.

On the basis of published reports *Z. hubbardi* is now known from the states of Maryland, Virginia, North Carolina, Georgia, Florida, Kentucky, Tennessee, Alabama, Mississippi, Louisiana, Texas, Arkansas and Missouri. Repeated searching of sawdust piles in southern Illinois has so far failed to show this interesting insect present in this state.

Comments on Aphididae List in Makino's Atlas of Chromosome Numbers in Animals

By Jean W. Fox, The Liberian Institute of the American Foundation for Tropical Medicine, Harbel, Liberia, West Africa

Sajiro Makino's compendium, An Atlas of Chromosome Numbers in Animals, is a valuable contribution for the use of those interested in checking cytological references and analyzing phylogeny. However, in the order Homoptera, the information as presented could lead to some false conclusions. Since the references are probably more likely to be used by cytologists than taxonomists, it is important to emphasize that all the species he lists under Aphididae are not considered members of that family according to most modern usage. There are basic differences in life history, as well as chromosome organization, which make distinction among the aphids, adelgids and phylloxerans imperative.

A check of Makino's records for ninety-three species shows at least thirty-one counts which are useless because of insufficient identification or should not be included under the family Aphididae. Nine of the species now belong either in the Phylloxeridae or the Adelgidae. Two appear under generic name only, and twenty-one are based on Stevens' studies from 1905 to 1909. The pioneer work of Stevens in this field was very stimulating and covered over twenty different aphids. Unfortunately, in checking her original papers, one finds only *Aphis oenotherae* sufficiently identified to be accepted as a known species. For the rest, she gives only host plant and sometimes a few brief words of description so it is impossible to place them taxonomically. It is quite probable, for this reason, that some of her work has been duplicated.

There is mistaken authorship of work on two of the species mentioned. Morgan's (1909) paper dealt with *Aphis salicola* and even cites von Baehr on *A. saleceti*. It was von Baehr (1908, '09, '12) who made the detailed study of *A. saleceti* which Makino attributes to Morgan or Stevens. This may be

the same "Harpswell willow Aphid" reported on by Stevens (1906, '09), as stated by Makino, but on the basis of her papers there is no evidence to support such a synonomy. She herself points out in the 1906 paper that the species she studied were not named because of inadequate classification of aphids at that time. Her publication in 1909 is simply a re-examination of the same material in the light of Morgan's results with Phylloxera. In it the "Harpswell willow Aphid" is referred to without any more definite speciation.

It would appear that there is also some duplication in the list. *Amphorophoro* (*Necterosiphum*) *ribicola* is quoted as Shinji's work in 1931; further on he is credited with a count for *Necterosiphum ribicola* in 1923. These entries would seem to refer to the same species. Since Makino never cites the original author of a species, it is impossible to check this beyond doubt without recourse to papers presently unavailable to the author.

An addition should be made to the list: Shinji's paper in 1931 included *Amphorophoro lespedezae* which showed six chromosomes in the primary spermatocyte with the X-chromosome unpaired.

References

Baehr, W. B. von (de). 1908. Zool. Anz., 33: 507.
——. 1909. Archiv. f. Zellforsch., 3: 269.
——. 1912. La cellule, *27*: 383–450. (This is a further study and review of papers published as von Baehr in German.)
Honda, H. 1921. Biol. Bull., 40: 349–369.
Lawson, C. A. 1936. Biol. Bull., 70: 288–307.
Makino, S. 1951. An atlas of chromosome numbers in animals. xviii–290 pp. 2nd edition, 1st American. The Iowa State College Press, Ames, Iowa.
Morgan, T. H. 1909. Jour. Exp. Zool., 7: 239–352.
——. 1910. Proc. Soc. Exp. Biol. Med., 7(4): 161–162.
——. 1915. Jour. Exp. Zool., 19: 285–323.
Shinji, O. 1931. Jour. Morph. Physiol., 51(2): 373–433.
Stevens, N. M. 1905a. Jour. Exp. Zool., *2*: 313–333.
——. 1905b. Carn. Instit. Wash. Publ., 36: 32 pp.
——. 1906. Carn. Instit. Wash. Publ., 51: 21 pp.
——. 1907. Science, N. S., 26: 216–218.
——. 1909. Jour. Exp. Zool., 6(1): 115–124.

Notes on Minnesota Mecoptera [1]

By JOHN W. BARNES, Department of Entomology and Economic Zoology, University of Minnesota

Specimens of five species of Mecoptera (*Panorpa signifer* Banks, *P. speciosa* Carp., *P. sigmoides* Carp., *P. venosa* Westw. and *Bittacus strigosus* Hagen) have been collected in Minnesota (Carpenter, 1931 and Byers, 1954).

Specimens of four additional species are present in the Department of Entomology's collection on the St. Paul Campus of the University of Minnesota. These additional records raise the number of species of Mecoptera collected in the state to nine. It is probable that *Panorpa canadensis* Banks and *P. nebulosa* Westw. will also be found in the state as Carpenter listed specimens collected from counties in Wisconsin which border on Minnesota.

Species not previously reported from Minnesota are:

Merope tuber New. 1♂, Gwinn's Bluff, 12[?] miles south of Winona, Winona Co., July 27, 1941, Ray Lindeman. 1♀, Bailey's Nursery, Grey Cloud Island, Washington Co., July 6, 1954, collected in a European chafer trap operated for the Division of Plant Industry of the Minnesota Department of Agriculture by the author. Several attempts at light trapping in subsequent years in the vicinity where the first specimen was collected have yielded negative results. However, the collection of a second specimen of this species in Minnesota as well as several records of the insect from Michigan (Byers, 1954) indicates that the range of this species is more widespread than previously supposed. Both Minnesota specimens were collected in the vicinity of the Mississippi River in mixed hardwood stands.

Panorpa submaculosa Carp. 1♂, Twin Bluffs [Gwinn's Bluff ?], Winona Co., July 20, 1942, C. E. Mickel.

[1] Paper No. 3494, Scientific Journal Series, Minnesota Agricultural Experiment Station, St. Paul 1, Minnesota.

Bittacus pilicornis Westw. 3♀♀, Preston, Fillmore Co., June 1, 1941, C. E. Mickel.

Bittacus stigmaterus Say. 1♀, Scott Co., Aug. 13, 1932, D. Denning.

REFERENCES

BYERS, G. W. 1954. Notes on North American Mecoptera. Ann. Ent. Soc. Am., 47: 484–510.

CARPENTER, F. M. 1931. Revision of nearctic Mecoptera. Bull. Mus. Comp. Zool., 72: 205–277.

A Bibliography of Insects on Postage Stamps

By S. W. FROST, The Pennsylvania State University, University Park, Pa.

The literature on this side-line of entomology is gradually increasing and deserves some consideration. It represents only one of many phases of the use of insects in art and a part of the broad subject of general entomology. At least twenty-four individuals are making special studies along this line and several are well known entomologists or biologists. Evidently the first reference to this subject was by the well known entomologist, the late W. S. Blatchley, who in an obscure article in 1935 made an appeal to entomologists to watch for insect stamps. Dr. Blatchley evidently made a rather extensive collection of these stamps but no one seems to know the final outcome of his efforts.

To give some idea of the extent of this subject, the writer has 504 of the 508 known stamps bearing insects. These represent insects, beehives and famous entomologists represented on stamps as well as a large number of stamps printed on paper watermarked with honeycomb. Various interesting studies of these stamps will appear in the future. The following list of references may help others.

BLATCHLEY, W. S. 1935. A veteran's appeal. Ent. News 46(4): 107.

FROST, S. W. 1955. The bee on postage stamps. Stamps 92(8): 226–228.

——. 1956. United States post marks bearing insect names. Stamps 94(1): 20–21.

MONTGOMERY, B. S. 1937. Insect stamps. Ent. News 48(7): 184–186, 218–219.
JONES, H. L. 1953. Butterflies and moths. Topical Time 4(6) No. 22: 158.
——. 1954. Insects on stamps. Topical Time 5(4) No. 26: 165.
ROTH, A. 1955. Insects on stamps. Topical Time 6(2) No. 30: 66–67.
SMITH, M. E. 1954. Additions to check list of butterflies and moths on stamps. Topical Time 5(4) No. 26: 133.
——. 1955. More butterflies and moths on stamps. Topical Time 6(2) No. 30: 67.
STEINHAUS, E. A. 1954. Insects on stamps. Weekly Philatelic Gossip 56(6): 172–175.
WAY, D. W. and O. D. STANDEN. 1953. Zoology on stamps. Philosophical Library Inc. 113 pp.

Notes and News in Entomology

Under this heading we present, from time to time, notes, news, and comments. Contributions from readers are earnestly solicited and will be acknowledged when used.

Professor von Frisch awarded Magellanic Prize. For his researches on the senses and on the language of the honey bee, this gold medal has been awarded to KARL VON FRISCH by the AMERICAN PHILOSOPHICAL SOCIETY at its meeting on Friday, April 17, in Philadelphia.

Professor von Frisch richly deserves this honor. Without doubt he is one of the most outstanding scientists in Europe today, as he has been for the past 40 or more years. His genius and skill as an experimenter was immediately apparent in his earliest publications on color-vision in bees, in which he completely upset the beliefs of the then current authorities. Since then, his work has maintained a uniformly high level of excellence, or has even, in the past ten years, attained greater heights. Each publication is perfect in itself and may serve as an example of how a scientific problem is properly attacked and resolved; and each bears the stamp of his clear-thinking, modest, and objective personality. For over 20 years, in my course in general zoology at the University of Pennsylvania, I have de-

voted most of the first two lecture periods to an elucidation of von Frisch's work on the bee language, in order to give the students an understanding of the scientific method—of how our knowledge is gained by means of observation and by reasoning, by hypotheses and their testing—and to show that patient work over a period of years may gradually serve to replace incomplete knowledge with a more complete understanding.

To give some idea of the spirit and personality of von Frisch I will quote (translating) a paragraph from the close of an address by the Professor to a meeting of the Bavarian Academy of Sciences last year.

"Experiments with animals are often like a quiz game. In our language the bee will tell us nothing. She will only say either 'Yes,' or 'No,' as a positive or a negative answer to the question posed by the experiment. The carrying on of such a dialogue with bees has to me always been the most enjoyable conversation. It is free of the unstraightforwardness of human conversation. And if misunderstanding should arise, the fault lies with the interrogator. The fascination of experimentation lies in the art of avoiding a misunderstanding. An experiment, correctly devised, is the magic key that compels the animal to give an answer to the question posed, and in answering it, the animal never lies."

The presentation of the Medal was made by Professor HARLOW SHAPLEY of the Harvard University Observatory, and the Medal was received, in the absence of Professor VON FRISCH, by a representative of the German embassy. The address of Professor von Frisch was read to the Society by Professor DONALD R. GRIFFIN of Harvard University. In passing, it may be of interest to readers of ENTOMOLOGICAL NEWS to know that Professor Shapley had read the articles on von Frisch's work that appeared in our journal, and that he very kindly wrote to its editor, inviting him to be his guest at the meeting of the Philosophical Society. The editor, in accepting, included some statements on von Frisch, and was later surprised and pleased to hear Professor Shapley quote these in his brief presentation address. These statements are reprinted in the three preceding paragraphs above.—R. G. S.

Reviews

MATCHING THE HATCH. A practical guide to imitation of insects found on eastern and western waters. By Ernest G. Schwiebert, Jr. Pp. x + 221. Illustrations by the author. The Macmillan Co., New York, 1955, $7.50.

This book, written by an architect, deals with what may be called a branch of applied entomology; it is on those insects that anglers seek to imitate in their artificial flies. Short introductory chapters take up the history of fly fishing, the habits of trout, and their selectivity in feeding. It is said that during the progress of a "hatch" (i.e., during the period of emergence of large numbers of a given species of mayfly or other aquatic insect) trout will feed exclusively on the particular insect and will accept no artificial fly that does not accurately imitate (in the eyes of the trout) the color and form of this species. The book then proceeds to acquaint the reader with the important hatches of may flies, stone flies, caddis flies and other aquatic insects. Of the first group, 46 species are described (naked eye diagnoses), and their habits discussed. For most of these colored illustrations are provided of all four forms (♂ and ♀ duns, or sub-imagos, and ♂ and ♀ spinners, or imagos). In addition to the 120 figures on the four colored plates there are also 41 black and white figures. A hatching calendar (bar-graphs) is provided and many pages are devoted to names and specifications for the artificial flies, and to a tabulation of the forms of each species and the fly that imitates each.

One error found (p. 15) is the old belief (perpetuated even in college text-books of 1955) that fish do not hear sounds, but only "vibrations" in the water, which they perceive by their lateral line organs. Twenty-five years ago KARL VON FRISCH, of bee-language fame, showed that fish are easily trained to respond to the sounds of tuning forks and pitch pipes, and was able to prove that they hear by means of the same parts of the inner ear, as does man, with no help from the lateral line.—R. G. SCHMIEDER.

EXCHANGES

This column is intended only for wants and exchanges, not for advertisements of goods for sale or services rendered. Notices not exceeding three lines free to subscribers.

These notices are continued as long as our limited space will allow; the new ones are added at the end of the column, and, only when necessary those at the top (being longest in) are discontinued.

Conopidae of the World wanted. Will pay 10¢ to $1.00 for pinned and labelled specimens. S. Camras, 4407 N. Milwaukee Ave., Chicago 30, Illinois.

Anisoptera—Nearctic sp. wanted for exchange, espec. Ophiog., Arigom., Aeschna, Neurocor., Somatoc., Cordulia, Dorocor., Leucor. R. D. Cuyler, Dept. of Entomology, N. C. State College, Raleign, N. C.

Bembicini and Stizini (Hym., Sphec.) of New World wanted for revis. study. Will return upon request or at end of project. James E. Gillaspy, Dept. of Zoology, Univ. Texas, Austin 12, Texas.

Agapema galbina. Will exchange cocoons of this moth for nature books. E. Frizzell, Route 4, Box 96, San Benito, Texas.

Wanted—Data on exact location of colonies of *Epibembex* (olim *Bembix*) (Hymenoptera), any species, any part of country, for biological studies. Howard E. Evans, Dept. Entomology, Cornell Univ., Ithaca, N. Y.

Fanniinae wanted on loan (nearctic and holarctic), and information on collections. James G. Chillcott, Dept. Entom., Univ. of Kansas, Lawrence, Kan. (Loans may be charged to Dr. C. D. Michener.)

Tenebrionidae of the World wanted, in exchange for insects of Argentina and neighboring countries. Horacio J. Molinari, Av. Lib. Gral. San Martin 55, Acassuso (Buenos Aires), Rep. Argentina.

Original Karlsbader DURABILE Insect Pins

First class, **hand made** pins. Now, again, in sizes No. 000 to 7. Price US $2 per 1000, f.o.b. Eschwege. Minimum order 5000, less 5% on over 50,000. *Minuten pins,* price US $1.20 a thousand. Send postal money, or check with order, or use confirmed bank credit (Bank Cto. 5593 Commerz-u. Creditbank, Eschwege/Werra.

Send for samples and detailed price lists.

FELIX SAVAÈTE, Eschwege/Werra, Germany.

Important Mosquito Works

MOSQUITO ATLAS. Part I. The Nearctic Anopheles, important malarial vectors of the Americas, and Aedes aegypti and Culex quinquefasciata

MOSQUITO ATLAS. Part II. The more important malaria vectors of the Old World: Europe, Asia, Africa and South Pacific region

By Edward S. Ross and H. Radclyffe Roberts

Price, 60 cents each (U. S. Currency) with order, postpaid within the United States; 65 cents, foreign.

KEYS TO THE ANOPHELINE MOSQUITOES OF THE WORLD

With notes on their Identification, Distribution, Biology and Relation to Malaria. By Paul F. Russell, Lloyd E. Rozeboom and Alan Stone

Mailed on receipt of price, $2.00 U. S. Currency. Foreign Delivery $2.10.

For sale by the American Entomological Society, 1900 Race Street, Philadelphia 3, Pa., U. S. A.

Just Published

New Classified Price Lists

Available separates from the TRANSACTIONS OF THE AMERICAN ENTOMOLOGICAL SOCIETY and ENTOMOLOGICAL NEWS, and all titles of the Society's MEMOIRS have been catalogued by author in twelve special price lists in the following categories:

Coleoptera	Neuroptera and Smaller Orders
Diptera	Odonata
Hemiptera	Orthoptera-Dermaptera
Hymenoptera	Arachnida and Other Classes
Lepidoptera	Bibliography-Biography
Memoirs	General

Lists will be mailed free upon request. Please state specifically which list or lists you require.

The American Entomological Society
1900 RACE STREET
PHILADELPHIA 3, PENNSYLVANIA

MEMOIRS OF THE AMERICAN ENTOMOLOGICAL SOCIETY

The Society offers for sale the 14 numbers of this important and steadily growing series of longer monographic works, all numbers of which are still in stock.

1.—Cresson (Ezra T.)—The Cresson Types of Hymenoptera (141 pp., 1916) ..... $ 3.00

2. —Hebard (Morgan)—The Blattidae of North America, North of the Mexican Boundary (284 pp., 10 pls., 1917) 5.50

3.—Munz (Philip A.)—A Venational Study of the Suborder Zygoptera (Odonata), with Keys for the Identification of Genera (78 pp., 20 pls., 1919) 2.00

4.—Hebard (Morgan)—The Blattidae of Panama (148 pp., 60 pls., 1920) 3.00

5.—Cresson (Ezra T.)—The Type of Hymenoptera in the Academy of Natural Sciences of Philadelphia other than those of Ezra T. Cresson (90 pp., 1928) 2.00

6.—Rivnay (Ezekiel)—Revision of the Rhipiphoridae of North and Central America (Coleoptera) (68 pp., 4 pls., 1929) 2.00

7.—Leonard (Mortimer D.)—A Revision of the Dipterous Family Rhagionidae (Leptidae) in the United States and Canada (182 pp., 3 pls., 1930) 4.50

8.—Rehn (James A. G. and Rehn, John W. H.)—The Eumastacinae of southern Mexico and Central America (84 pp., 6 pls., 1934) .. 2.50

9.—Pate (V. S. L.)—The Generic Names of the Sphecoid Wasps and their type species (103 pp., 1937) 2.50

10.—Huckett (H. C.)—A Revision of the North American species belonging to the genus Pegomyia (131 pp., 9 pls., 1941) 3.00

11. —Townes (Henry K., Jr.)—Catalogue and reclassification of The Nearctic Ichneumonidae (925 pp., 1944) 15.00

12.—Phillips (Venia Tarris)—The Biology and Identification of Trypetid Larvae (161 jj., 16 pls., 1946) 5.00

13.—Braun (Annette F.)—Elachistidae of North America (Microlepidoptera) (110 pp., 26 pls., 1948) 4.50

14.—Rehn (John W. H.)—Classification of the Blattaria as indicated by their Wings (134 pp., 13 pls., 1951) 5.00

THE AMERICAN ENTOMOLOGICAL SOCIETY

1900 RACE STREET, PHILADELPHIA 3, PA.